

STATE OF ALASKA

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF MINING, LAND AND WATER

DAM SAFETY AND CONSTRUCTION UNIT



Temporary Certificate of Approval to Operate a Dam

The **State of Alaska** under AS 46.17, and the regulations adopted under this statute, grants to:

Teck Alaska Incorporated

The approval to operate the following structure on the **Red Dog Creek** in accordance with the terms and conditions contained in this certificate:

Red Dog Tailings Back Dam (NID ID# AK00303)

The location of this project is: S31, T31N, R18W, Kateel River Meridian

The holder of this certificate shall:

- ☐ Operate and maintain the Red Dog Tailings Back Dam and appurtenant works in accordance with accepted practice and the the document titled, "Operations and Maintenance Manual, Rev. 3, Tailings Back Dam, Red Dog Mine, AK" and dated October 21, 2016.
- ☐ Except for claims or losses arising from negligence of the State, defend and indemnify the State against, and hold it harmless from any and all claims, demands, legal actions, loss, liability and expense for injury or death of persons, and damages to or loss of property, arising out of or connected with the exercise of the approval granted by this certificate.
- ☐ Comply with all applicable laws, regulations and conditions.
- ☐ Allow representatives of the Department to inspect the work and records covered by this certificate at all times determined necessary by the Commissioner.
- ☐ Follow special conditions that apply to the operation of this dam presented in Attachment A, attached hereto and made a part hereof.

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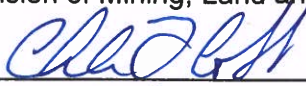
TEMPORARY CERTIFICATE OF APPROVAL TO OPERATE A DAM
Red Dog Tailings Back Dam

This *Certificate of Approval to Operate a Dam* supersedes any other *Certificate of Approval to Operate a Dam* for the Red Dog Tailings Back Dam and shall become invalid on the expiration date specified in Attachment A.

This *Certificate of Approval to Operate a Dam* is granted subject to the pertinent statutory provisions in AS 46.17 and the administrative regulations in Article 3 of 11 AAC 93.

APPROVED BY: Charles F. Cobb, P. E.

TITLE: State Dam Safety Engineer
Division of Mining, Land and Water

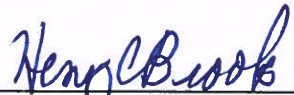
SIGNATURE: 

DATE: September 22, 2020

State of Alaska)
) SS.
Third Judicial District)

This is to certify that on September 22, 2020, before me appeared Charles F. Cobb, known by me to be the Authorized Representative of the Division of Mining, Land and Water, Alaska Department of Natural Resources, and acknowledged to me that this Certificate of Approval was voluntarily executed on behalf of the State of Alaska.

HENRY C. BROOKS
Notary Public
State of Alaska


Notary Public in and for the State of Alaska

My commission expires: with office

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Attachment A – Special Conditions

1. The Red Dog Tailings Back Dam is temporarily approved to operate as a Class II (significant) hazard potential dam as defined in 11 AAC 93.157 at a nominal crest elevation of 996 feet plus an additional 5 feet of fill for frost protection, if necessary. The maximum allowed surface water level in the tailings storage facility is elevation 986 feet. Tailings may be placed adjacent to the Red Dog Tailings Back Dam up to nominal elevation 995 feet for purposes of beach construction during active mine operations without additional authorization from the Department.
2. Except for the revised freeboard allowance for water and tailings provided in special condition 1, operate, monitor, inspect and maintain the Red Dog Tailings Back Dam in accordance with best practices and the procedures described in the "Operations and Maintenance Manual, Revision 3, Tailings Back Dam, Red Dog Mine, AK" dated October 21, 2016 (O&M Manual). Inspect the dam and appurtenant works after all significant seismic or precipitation events. Maintain records of all inspections, monitoring data, and routine maintenance.
3. Within 45 days of the date of this certificate submit the following documents:
 - The construction completion report for the dam raise to Stage IV elevation 996 feet
 - Updated operations and maintenance manual to reflect the operational procedures for the dam in the current configuration
 - The report for the 2020 Periodic Safety Inspection
4. Document any routine operations and maintenance procedures that deviate from or are not included in the current version of the O&M Manual. Review the O&M Manual concurrent with each Periodic Safety Inspection and revise as necessary.
5. Perform a Periodic Safety Inspection on the dam and appurtenant works as required by 11 AAC 93.159. The next Periodic Safety Inspection (PSI) is due by August 3, 2023 and must be performed by an engineer qualified in accordance with 11 AAC 93.193(b). Approval of the engineer and the scope of the inspection must be obtained from the Department in advance of the inspection. Submit the proposed scope and independent engineer 60 days prior to the scheduled date of the inspection. Submit a draft PSI report to the Department for review within 60 days of the visual inspection of the dam.
6. An annual instrumentation report shall be submitted to the Department which shall include, but not be limited to, thermistor, piezometer, inclinometer, extensometer, water level, seepage pumpback, and survey data. In addition, the report must include cross section drawings or other summary showing a history of permafrost and groundwater levels in the overburden stockpile and the dam. The report shall be in summary form and in a format approved in advance by the Department. The annual instrumentation report is due by March 31 of each year.
7. An annual dam performance report prepared by an engineer qualified in accordance with 11 AAC 93.193(b) shall be submitted to the Department by October 31 for each year during active mine operations. At a minimum, the report shall include:
 - the findings of a visual inspection of the dam when it is clear of snow

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Red Dog Tailings Back Dam

- photographs of key features of the dam and appurtenant works and other observations during the visual inspection
- a review and evaluation of routine inspection and maintenance reports
- a review and evaluation of monitoring data included in the instrumentation report required under Special Condition 6 and any additional monitoring data available at the time of the site visit

The report shall be in summary form and in a format approved in advance by the Department. This requirement is waived for each year that a PSI is conducted, but the PSI must include the above listed information in addition to meeting the other requirements of 11 AAC 93.159. This report may be prepared by the engineer of record.

8. An Emergency Action Plan (EAP) shall be maintained for dams at the Red Dog Mine in accordance with the requirements of 11 AAC 93.164. The EAP shall be reviewed, exercised, and revised in accordance with the following schedule:

| Frequency | Year Required | Action |
|-------------|------------------|---------------------------------------------------|
| Annually | 2021, 2022, 2023 | Internal review |
| Annually | 2021, 2022, 2023 | Orientation exercise with all responsible parties |
| Annually | 2021, 2022, 2023 | Revise as needed and distribute updated pages |
| Biennially | 2022 | Drill exercise (Internal responsible parties) |
| Triennially | 2023 | Table top exercise with all responsible parties |
| Triennially | 2023 | Revise and distribute to all responsible parties |

The drill exercise is not required in the same year as the table top exercise. EAP exercises must include responsible parties listed in the plan and as indicated in the schedule. Provide written notice to the Department within 14 days after all EAP exercises.

9. Notify the Department immediately if the EAP is activated, or within 24 hours for any significant problems that may develop which could affect the safety of the dam. An incident report shall be completed and submitted to the Department in accordance with 11 AAC 93.177 within 14 days after the conclusion of the incident.
10. If monitoring indicates that the permafrost conditions of the overburden stockpile are thawing, submit an application for a *Certificate of Approval to Modify a Dam* in accordance with the requirements of 11 AAC 93.171 for a seepage collection system adequate to collect all seepage from the Red Dog Tailings Back Dam and protect the Bons Creek drainage, or other mitigation measures.
11. An application for a certificate of approval must be submitted to the Department for any modifications, including raising the dam and mine closure modifications; or major repairs that may affect the safety of the dam; or for removal or abandonment of the dam; or for transfer of ownership during mine operations.

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12. This *Certificate of Approval to Operate a Dam* expires on December 31, 2020.

End of Attachment A

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